

# Carleton Ravens OUA Basketball Analytics Report

At the time of writing, the University Basketball Regular Season is more than halfway through. These are the standings as of January 20th 2019.

## 2018-19 OUA Women's Basketball Standings

<b>EAST</b>								
	GP	PTS	W-L	PCT	PF	PA	L10	STRK
Ottawa	16	28	14-2	0.875	1273	915	9-1	Won 4
Ryerson	16	28	14-2	0.875	1204	882	8-2	Won 5
Carleton	16	26	13-3	0.813	1070	868	8-2	Won 3
Queen's	16	18	9-7	0.563	1097	986	4-6	Lost 2
Laurentian	16	12	6-10	0.375	1005	1066	4-6	Won 1
York	16	12	6-10	0.375	1067	1110	2-8	Lost 3
Toronto	16	8	4-12	0.250	985	1135	3-7	Lost 1
Nipissing	16	6	3-13	0.188	885	1148	3-7	Lost 4

<b>WEST</b>								
	GP	PTS	W-L	PCT	PF	PA	L10	STRK
McMaster	16	28	14-2	0.875	1231	988	9-1	Won 8
Lakehead	16	24	12-4	0.750	1167	1036	4-3	Lost 3
Windsor	16	20	10-6	0.625	1096	1002	7-3	Won 3
Brock	16	14	7-9	0.438	1013	1080	4-6	Lost 2
Laurier	16	12	6-10	0.375	963	1079	4-6	Won 2
Guelph	16	10	5-11	0.313	1104	1153	2-8	Lost 1
Western	16	10	5-11	0.313	863	1116	4-6	Won 4
Algoma	16	8	4-12	0.250	879	1119	2-5	Lost 4
Waterloo	16	8	4-12	0.250	852	1071	3-7	Lost 3

The Carleton Ravens Women's team is in third with a record of 13-3. In the East we have uOttawa and Ryerson tied for first and in the West we have McMaster in first.

In this report we will try to give an in-depth analysis on the Carleton Ravens Women's Basketball team and hopefully give some meaningful insights and possible suggestions that can help benefit the team.

We will start with descriptive statistics based on the OUA's Team Statistics

<http://www.oua.ca/sports/wbkb/2018-19/teams?sort=&r=0&pos=off>

## Offensive Statistics

Below we have the Offensive statistics for all teams sorted from highest to lowest average points.

RK	NAME	GP	FG	PCT	3PT	PCT	FT	PCT	OFF	DEF	REB	AST	TO	STL	BLK	PF	PTS
1	Ottawa	16	491-1090	45.0	105-296	35.5	186-239	77.8	13.9	28.5	42.4	17.3	14.9	10.1	4.1	16.0	79.6
2	McMaster	16	453-1141	39.7	127-390	32.6	198-267	74.2	15.1	27.6	42.7	20.0	15.7	11.8	4.4	16.8	76.9
3	Ryerson	16	441-1067	41.3	95-307	30.9	227-317	71.6	17.6	29.7	47.3	15.5	16.4	9.5	3.8	14.9	75.3
4	Lakehead	16	452-1097	41.2	96-309	31.1	167-243	68.7	13.3	23.4	36.6	14.8	15.6	12.0	2.8	17.7	72.9
5	Guelph	16	404-1116	36.2	67-252	26.6	229-322	71.1	15.8	24.0	39.8	11.1	19.9	11.4	3.6	16.5	69.0
6	Queen's	16	391-1052	37.2	100-339	29.5	215-323	66.6	16.0	28.8	44.8	15.4	20.6	9.9	3.3	13.3	68.6
7	Windsor	16	404-1070	37.8	104-366	28.4	184-266	69.2	14.4	26.2	40.6	14.1	16.9	7.8	2.7	16.8	68.5
8	Carleton	16	388-1014	38.3	120-408	29.4	174-252	69.0	13.1	24.5	37.6	12.9	16.4	9.5	3.6	15.0	66.9
9	York	16	381-1061	35.9	105-364	28.8	200-317	63.1	15.1	24.5	39.6	10.9	20.9	11.1	2.2	19.6	66.7
10	Brock	16	380-1104	34.4	88-368	23.9	165-260	63.5	14.4	23.4	37.8	11.4	14.9	11.4	1.1	17.9	63.3
11	Laurentian	16	329-950	34.6	126-415	30.4	221-302	73.2	8.5	27.5	36.0	12.9	16.7	8.6	2.4	16.7	62.8
12	Toronto	16	350-1035	33.8	90-338	26.6	195-273	71.4	12.6	25.2	37.8	10.6	16.8	8.6	1.9	16.8	61.6
13	Laurier	16	348-973	35.8	56-236	23.7	211-288	73.3	8.5	28.0	36.5	14.5	17.6	6.6	4.0	15.9	60.2
14	Nipissing	16	332-1084	30.6	87-385	22.6	134-204	65.7	11.0	24.2	35.2	10.9	14.1	6.8	1.3	15.3	55.3
15	Algoma	16	300-908	33.0	105-393	26.7	171-275	62.2	8.5	24.5	33.0	9.8	20.5	7.9	2.6	18.9	54.9
16	Western	16	300-874	34.3	94-320	29.4	174-265	65.7	8.7	21.2	29.9	7.4	19.6	8.8	1.1	13.6	53.9
17	Waterloo	16	284-988	28.7	73-339	21.5	211-315	67.0	11.3	23.9	35.1	9.6	19.9	8.8	2.1	18.1	53.3

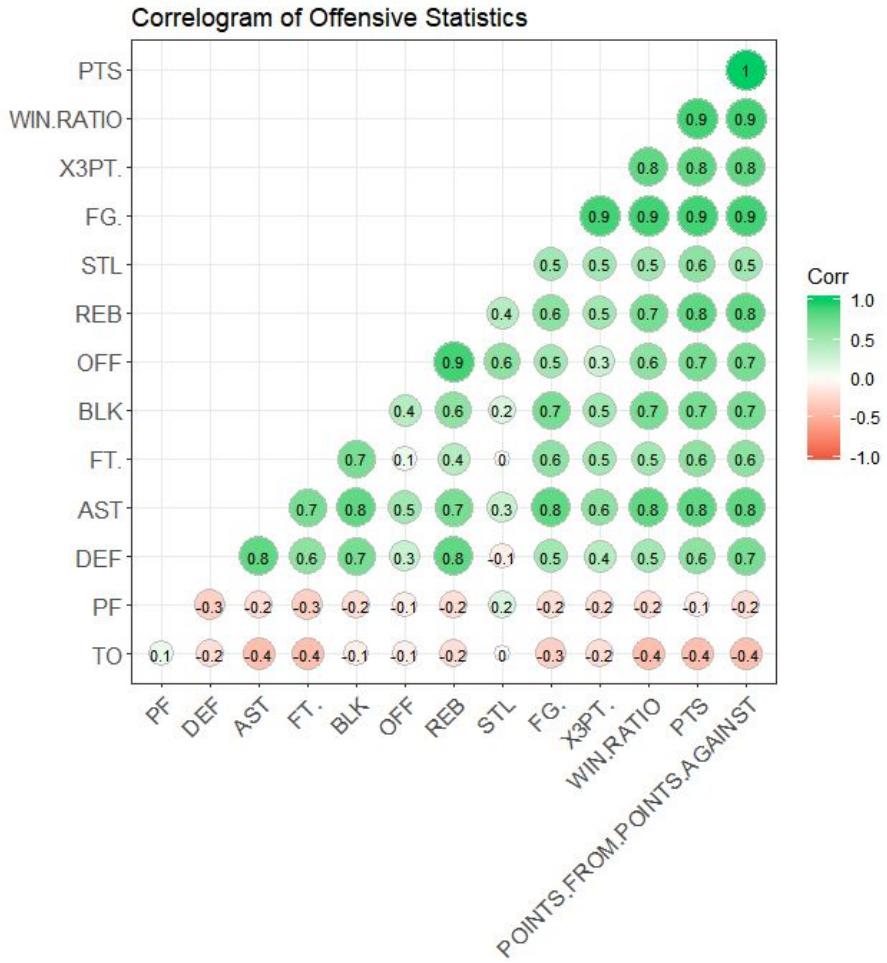
Surprisingly Carleton is placed 8th out of all the teams when ranked offensively based on Average Team PPG. Yet, Carleton is still one of the top 4 teams in Women's U Sports. This is because basketball is a two-way game. For what Carleton lacks on offense, they make up for it on defense. However, the top four teams in this table consist of top 2 teams for the East and the top 2 teams in the West. We can also see that those teams have the best shooting percentages, which of course makes sense. The best offensive teams are the ones that shoot the most effectively and thus score more points than the average team. If we sort best to worst for each variable, we won't always get the top teams in the league.

Below is a table of the top 5 teams for each statistic.

RANK	NAME	FG	FG%	RANK	NAME	3PT	3PT%	RANK	NAME	FT	FT%	RANK	NAME	PTS
1	Ottawa	491-1090	45	1	Ottawa	105-296	35.5	1	Ottawa	186-239	77.8	1	Ottawa	79.6
2	Ryerson	441-1067	41.3	2	McMaster	127-390	32.6	2	McMaster	198-267	74.2	2	McMaster	76.9
3	Lakehead	452-1097	41.2	3	Lakehead	96-309	31.1	3	Laurier	211-288	73.3	3	Ryerson	75.3
4	McMaster	453-1141	39.7	4	Ryerson	95-307	30.9	4	Laurentian	221-302	73.2	4	Lakehead	72.9
5	Carleton	388-1014	38.3	5	Laurentian	126-415	30.4	5	Ryerson	227-317	71.6	5	Guelph	69
RANK	NAME	OFF		RANK	NAME	DEF		RANK	NAME	REB		RANK	NAME	AST
1	Ryerson	17.6		1	Ryerson	29.7		1	Ryerson	47.3		1	McMaster	20
2	Queen's	16		2	Queen's	28.8		2	Queen's	44.8		2	Ottawa	17.3
3	Guelph	15.8		3	Ottawa	28.5		3	McMaster	42.7		3	Ryerson	15.5
4	McMaster	15.1		4	Laurier	28		4	Ottawa	42.4		4	Queen's	15.4
5	York	15.1		5	McMaster	27.6		5	Windsor	40.6		5	Lakehead	14.8
RANK	NAME	TO		RANK	NAME	STL		RANK	NAME	BLK		RANK	NAME	PF
1	Nipissing	14.1		1	Lakehead	12		1	McMaster	4.4		1	Queen's	13.3
2	Brock	14.9		2	McMaster	11.8		2	Ottawa	4.1		2	Western	13.6
2	Ottawa	14.9		3	Brock	11.4		3	Laurier	4		3	Ryerson	14.9
4	Lakehead	15.6		4	Guelph	11.4		4	Ryerson	3.8		4	Carleton	15
5	McMaster	15.7		5	York	11.1		5	Guelph	3.6		5	Nipissing	15.3

We are interested in which variables contribute the most to winning games. If we could do that then we can look at which of those important variables our team lacks and put more emphasis to improving them.

To find the most important variables we can calculate correlation statistics and see which of them are the most correlated to a high win ratio.



This is a correlogram. A correlogram shows the correlation between two variables by looking at the intersection of the variables. We can see that Personal Fouls and Turnovers are negatively correlated to all the other statistics.

Looking at the Win Ratio variable, we see that the most correlated statistics are FG%, 3PT%, Assists, Blocks, and Rebounds, respectively from highest to lowest, with a correlation statistic of  $> 0.7$ .

These are team statistics that differ between all teams. How a team plays together greatly impacts these statistics. Each team is comprised of unique players that have their own pros and cons while on the court. The coach's job is to create lineups of 5 players that will optimize the team's performance.

Each team has their own playing style and adjusts to the opponent's playing style and/or makes the opponent adjust to their playing style.

## Team Play Types

Using Synergy Sports Technology, an American company that creates web-based, on-demand video-supported basketball analytics for the purposes of scouting, development and entertainment, we could see each team's playing style ordered from most to least used.

Play Types	% Time	Poss	Points	PPP	Rank	Rating	FGm	FGM	FGA	FG%	aFG%	%TO	%FT	%SF	%Score
Spot Up	30.8%	407	344	0.845	89%	Excellent	228	122	350	34.9%	45.4%	10.6%	4.7%	3.9%	33.2%
Transition	15.1%	199	165	0.829	52%	Good	85	60	145	41.4%	47.9%	19.1%	9.5%	6.5%	38.2%
P&R Ball Handler	9.8%	130	87	0.669	76%	Very Good	57	33	90	36.7%	38.9%	21.5%	9.2%	6.2%	34.6%
Cut	8.7%	115	114	0.991	72%	Very Good	42	42	84	50%	50%	10.4%	21.7%	20%	50.4%
Post-Up	7.7%	102	81	0.794	71%	Very Good	42	27	69	39.1%	39.1%	14.7%	19.6%	16.7%	43.1%
Isolation	6%	79	56	0.709	63%	Good	38	23	61	37.7%	41%	17.7%	7.6%	6.3%	34.2%
Off Screen	4.5%	60	43	0.717	48%	Average	36	16	52	30.8%	39.4%	11.7%	1.7%	1.7%	28.3%
Offensive Rebounds (put backs)	4.5%	59	39	0.661	11%	Poor	22	17	39	43.6%	43.6%	23.7%	16.9%	16.9%	35.6%
P&R Roll Man	2.8%	37	29	0.784	49%	Average	17	12	29	41.4%	46.6%	16.2%	5.4%	5.4%	35.1%
Hand Off	1.7%	23	18	0.783	76%	Very Good	13	7	20	35%	35%	4.3%	13%	13%	39.1%
Miscellaneous	8.3%	109	17	0.156	2%	Poor	12	1	13	7.7%	11.5%	77.1%	11%	0%	10.1%

These are Carleton's play types. Carleton's top five most used play types are Spot-Ups, Transitions, Pick and Roll Ball Handler (when the Pick and Roll ball handler ends up taking the shot, not the Roll man), Cut and Post-Up. Also provided on Synergy are the results of the plays and related statistics with ratings for each play type based on percentile of all other teams.

The play types that contributed to the most points are Spot-Ups, Transition and Cuts, in which we are rated Excellent, Good, and Very Good, respectively. Using this table we can see which play types are the most effective and which are not.

The %Score variable is the percentage of the player's possessions where they scored at least 1 point. The following is the formula:

$$\text{%Score} = (\text{Total Possessions with } \geq 1 \text{ Point}) / (\text{Total Possessions})$$

This metric is very useful in finding which of the plays leads to the most efficient scoring. We can see that Cuts, and Post-Ups are very effective. The %FT and %SF are also important to note when speaking about scoring efficiency because they show the percentage of possessions where the player is fouled in the act of shooting and awarded free throws. These metrics are also highest for Cuts and Post-Ups.

We should also take a look at the %TO variable. This variable tells us the percentage of possessions where the player turns the ball over. The top 3 highest turnover percentages are Offensive Put-Backs, Pick and Roll Ball Handler, and Transition. This could suggest some practice on conducting these plays.

We could compare Carleton's playing type to the other top teams. This could possibly give insight into possible traits of successful teams and their playing styles.

## uOttawa's Play Types:

Play Types	% Time	Poss	Points	PPP	Rank	Rating	Fgm	Fgm	Fga	FG%	aFG%	%TO	%FT	%SF	%Score
Transition	23.4%	327	335	1.024	100%	Excellent	106	126	232	54.3%	60.8%	19%	11.9%	10.7%	47.4%
Spot Up	22.5%	315	242	0.768	65%	Very Good	194	91	285	31.9%	40.9%	7.9%	1.6%	1.3%	30.5%
Post-Up	12.2%	170	141	0.829	78%	Very Good	70	61	131	46.6%	46.6%	15.9%	8.2%	5.3%	41.8%
Cut	9.9%	139	152	1.094	98%	Excellent	44	64	108	59.3%	59.3%	12.9%	10.8%	10.1%	55.4%
P&R Ball Handler	7.2%	101	87	0.861	100%	Excellent	49	34	83	41%	45.2%	10.9%	8.9%	6.9%	40.6%
Offensive Rebounds (put backs)	6.7%	93	93	1	76%	Very Good	32	36	68	52.9%	52.9%	12.9%	17.2%	16.1%	52.7%
Off Screen	4.1%	58	37	0.638	26%	Below Average	33	14	47	29.8%	35.1%	13.8%	5.2%	3.4%	29.3%
Hand Off	2.7%	38	38	1	98%	Excellent	17	14	31	45.2%	51.6%	7.9%	10.5%	7.9%	47.4%
P&R Roll Man	2.4%	34	25	0.735	47%	Average	20	11	31	35.5%	37.1%	5.9%	2.9%	2.9%	35.3%
Isolation	1.4%	20	13	0.65	37%	Average	10	4	14	28.6%	28.6%	20%	15%	15%	30%
Miscellaneous	7.4%	103	29	0.282	61%	Good	9	6	15	40%	40%	75.7%	9.7%	0%	15.5%

## Ryerson's Play Types:

Play Types	% Time	Poss	Points	PPP	Rank	Rating	Fgm	Fgm	Fga	FG%	aFG%	%TO	%FT	%SF	%Score
Spot Up	20.3%	286	227	0.794	74%	Very Good	179	82	261	31.4%	41.8%	5.9%	3.1%	2.8%	31.5%
Post-Up	14.8%	208	176	0.846	80%	Very Good	82	67	149	45%	45%	15.4%	14.9%	11.5%	44.2%
Transition	12.9%	182	164	0.901	78%	Very Good	69	63	132	47.7%	53.8%	20.3%	10.4%	9.3%	41.2%
Cut	10.8%	152	157	1.033	78%	Very Good	57	65	122	53.3%	53.3%	9.2%	12.5%	12.5%	53.3%
Offensive Rebounds (put backs)	10.8%	152	161	1.059	93%	Excellent	50	60	110	54.5%	54.5%	11.2%	21.1%	20.4%	55.3%
P&R Ball Handler	8.5%	119	96	0.807	98%	Excellent	54	36	90	40%	43.3%	16%	12.6%	10.1%	37.8%
Off Screen	4.8%	67	45	0.672	33%	Average	37	14	51	27.5%	34.3%	14.9%	9%	9%	29.9%
Isolation	3.3%	47	28	0.596	26%	Below Average	22	5	27	18.5%	20.4%	23.4%	19.1%	17%	29.8%
P&R Roll Man	2.5%	35	18	0.514	7%	Poor	20	8	28	28.6%	28.6%	11.4%	8.6%	8.6%	28.6%
Hand Off	2.1%	29	20	0.69	53%	Good	18	7	25	28%	36%	10.3%	6.9%	6.9%	27.6%
Miscellaneous	9.2%	129	31	0.24	35%	Average	11	4	15	26.7%	26.7%	76%	12.4%	3.1%	14%

## McMaster's Play Types:

Play Types	% Time	Poss	Points	PPP	Rank	Rating	Fgm	Fgm	Fga	FG%	aFG%	%TO	%FT	%SF	%Score
Spot Up	23.5%	363	325	0.895	98%	Excellent	211	117	328	35.7%	46.5%	5.8%	4.4%	4.1%	35.5%
Transition	23.4%	362	316	0.873	67%	Very Good	142	117	259	45.2%	51%	19.6%	10.5%	9.1%	41.2%
Cut	8.7%	134	140	1.045	87%	Excellent	51	63	114	55.3%	55.3%	6%	9.7%	9%	53.7%
Off Screen	6.5%	101	69	0.683	39%	Average	67	25	92	27.2%	32.1%	5%	6.9%	6.9%	28.7%
P&R Ball Handler	6.1%	95	55	0.579	35%	Average	55	21	76	27.6%	29.6%	11.6%	8.4%	5.3%	28.4%
Offensive Rebounds (put backs)	6.1%	94	75	0.798	28%	Below Average	39	28	67	41.8%	41.8%	16%	12.8%	10.6%	41.5%
Hand Off	5.6%	86	72	0.837	89%	Excellent	45	27	72	37.5%	45.8%	11.6%	4.7%	4.7%	36%
Post-Up	4.9%	76	49	0.645	35%	Average	38	16	54	29.6%	29.6%	14.5%	14.5%	13.2%	34.2%
Isolation	2.5%	38	25	0.658	39%	Average	22	8	30	26.7%	26.7%	7.9%	13.2%	10.5%	34.2%
P&R Roll Man	2.3%	35	34	0.971	80%	Very Good	12	14	26	53.8%	55.8%	17.1%	8.6%	2.9%	48.6%
Miscellaneous	10.4%	161	64	0.398	96%	Excellent	19	14	33	42.4%	43.9%	67.1%	12.4%	0.6%	20.5%

## Defensive Statistics

Below we have Team Defensive Statistics ordered from lowest to highest points allowed.

RK	NAME	GP	FG	PCT	3PT	PCT	OFF	DEF	REB	MRGN	AST	TO	STL	BLK	PF	PTS
1	Carleton	16	324-926	35.0	70-295	23.7	8.7	22.3	30.9	6.7	10.9	19.1	8.6	2.4	16.9	54.3
2	Ryerson	16	318-967	32.9	100-336	29.8	10.8	22.4	33.3	14.1	11.9	18.7	7.9	1.5	17.4	55.1
3	Ottawa	16	324-977	33.2	97-355	27.3	10.4	22.6	33.0	9.4	11.4	18.7	7.7	2.5	14.7	57.2
4	Queen's	16	386-1082	35.7	80-313	25.6	12.0	22.4	34.4	10.3	13.9	17.7	12.3	4.1	16.5	61.6
5	McMaster	16	367-1078	34.0	85-327	26.0	15.5	27.5	43.0	-0.3	12.8	20.9	9.2	2.5	16.8	61.8
6	Windsor	16	369-1019	36.2	76-272	27.9	10.3	22.6	32.9	7.8	10.9	15.7	8.1	1.5	16.9	62.6
7	Lakehead	16	363-1017	35.7	100-372	26.9	12.4	22.2	34.6	2.1	11.8	18.6	7.3	3.1	15.2	64.8
8	Laurentian	16	390-1046	37.3	87-318	27.4	14.0	30.1	44.1	-8.1	13.9	15.9	8.8	3.4	16.8	66.6
9	Waterloo	16	379-1041	36.4	101-371	27.2	13.6	27.3	40.9	-5.8	12.9	17.2	9.6	3.8	17.8	66.9
10	Laurier	16	383-1084	35.3	91-344	26.5	13.3	27.0	40.3	-3.8	14.9	14.0	10.0	2.5	17.6	67.4
11	Brock	16	385-1020	37.7	102-377	27.1	14.9	29.3	44.2	-6.4	15.7	18.7	8.3	2.6	16.1	67.5
12	York	16	402-1022	39.3	89-294	30.3	12.3	24.3	36.6	3.0	12.7	20.0	11.6	1.6	18.6	69.4
13	Western	16	407-1018	40.0	131-375	34.9	12.4	24.6	37.1	-7.2	10.9	15.9	10.9	2.2	15.3	69.8
14	Algoma	16	385-1043	36.9	92-344	26.7	12.9	26.7	39.6	-6.6	11.3	16.0	12.2	3.1	16.1	69.9
15	Toronto	16	411-1078	38.1	98-364	26.9	15.5	29.4	44.9	-7.1	13.4	17.1	9.3	3.6	16.1	70.9
16	Nipissing	16	422-1124	37.5	124-377	32.9	14.4	30.1	44.4	-9.3	14.8	13.4	8.1	2.9	12.9	71.8
17	Guelph	16	413-1082	38.2	115-391	29.4	14.6	24.1	38.8	1.1	15.3	19.8	10.9	3.8	18.3	72.1
18	TBD	-	0-0	-	0-0	-	-	-	-	-	-	-	-	-	-	-

Here we see that Carleton is the best defensive team in the league, allowing the opponent's an average of 54.3 PPG. Teams shoot an average FG of 35% when playing against us, along with the best defense against 3-pointers with teams shooting an average 3PT of 23.7%.

We can perform the same correlogram to see which defensive variables are most important to a successful team.



This time since we are looking at defensive statistics, we are looking at the inverse of the Offensive Correlogram. This means that teams that force the most Turnovers, and Personal Fouls and teams that make the opposing team score less, have less FG%, assists, steals and blocks are the more successful defensive team.

RANK	NAME	FG	PCT	RANK	NAME	3PT	PCT	RK	NAME	OFF	RANK	NAME	PTS	
1	Ryerson	318-967	32.9	1	Carleton	70-295	23.7	1	Carleton	8.7	1	Carleton	54.3	
2	Ottawa	324-977	33.2	2	Queen's	80-313	25.6	2	Windsor	10.3	2	Ryerson	55.1	
3	McMaster	367-1078	34	3	McMaster	85-327	26	3	Ottawa	10.4	3	Ottawa	57.2	
4	Carleton	324-926	35	4	Laurier	91-344	26.5	4	Ryerson	10.8	4	Queen's	61.6	
5	Laurier	383-1084	35.3	5	Algoma	92-344	26.7	5	Queen's	12	5	McMaster	61.8	
RANK	NAME	DEF		RANK	NAME	REB		RANK	NAME	MRGN		RANK	NAME	AST
1	Lakehead	22.2		1	Carleton	30.9		1	Ryerson	14.1		1	Carleton	10.9
2	Carleton	22.3		2	Windsor	32.9		2	Queen's	10.3		1	Western	10.9
3	Queen's	22.4		3	Ottawa	33		3	Ottawa	9.4		3	Windsor	10.9
4	Ryerson	22.4		4	Ryerson	33.3		4	Windsor	7.8		4	Algoma	11.3
5	Windsor	22.6		5	Queen's	34.4		5	Carleton	6.7		5	Ottawa	11.4
RANK	NAME	TO		RANK	NAME	STL		RANK	NAME	BLK		RANK	NAME	PF
1	McMaster	20.9		1	Lakehead	7.3		1	Ryerson	1.5		1	York	18.6
2	York	20		2	Ottawa	7.7		1	Windsor	1.5		2	Guelph	18.3
3	Guelph	19.8		3	Ryerson	7.9		3	York	1.6		3	Waterloo	17.8
4	Carleton	19.1		4	Windsor	8.1		4	Western	2.2		4	Laurier	17.6
5	Brock	18.7		5	Nipissing	8.1		5	Carleton	2.4		5	Ryerson	17.4

These are the top 5 defensive teams for every category.

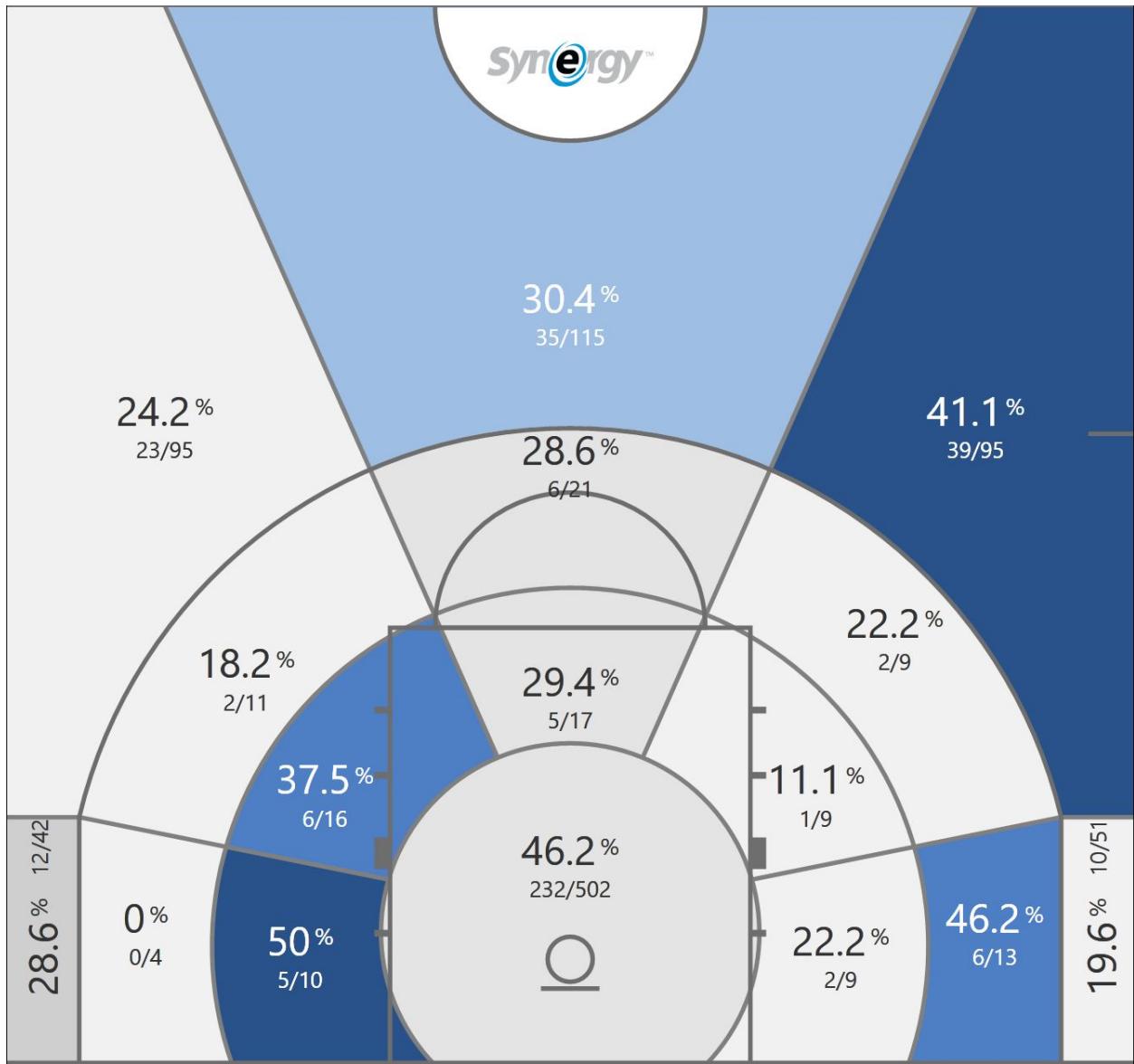
## Exploring Synergy Features

As previously mentioned, Synergy Sports Technology is an American company that creates web-based, on-demand video-supported basketball analytics for the purposes of scouting, development and entertainment. There are many analytical tools we can use on this platform. I will be demonstrating the important ones.

### Multi-Game Shot Chart

The multi-game shot chart is an extremely useful feature that shows the accumulation of all shots taken by a team on a shot chart with their associated frequencies.

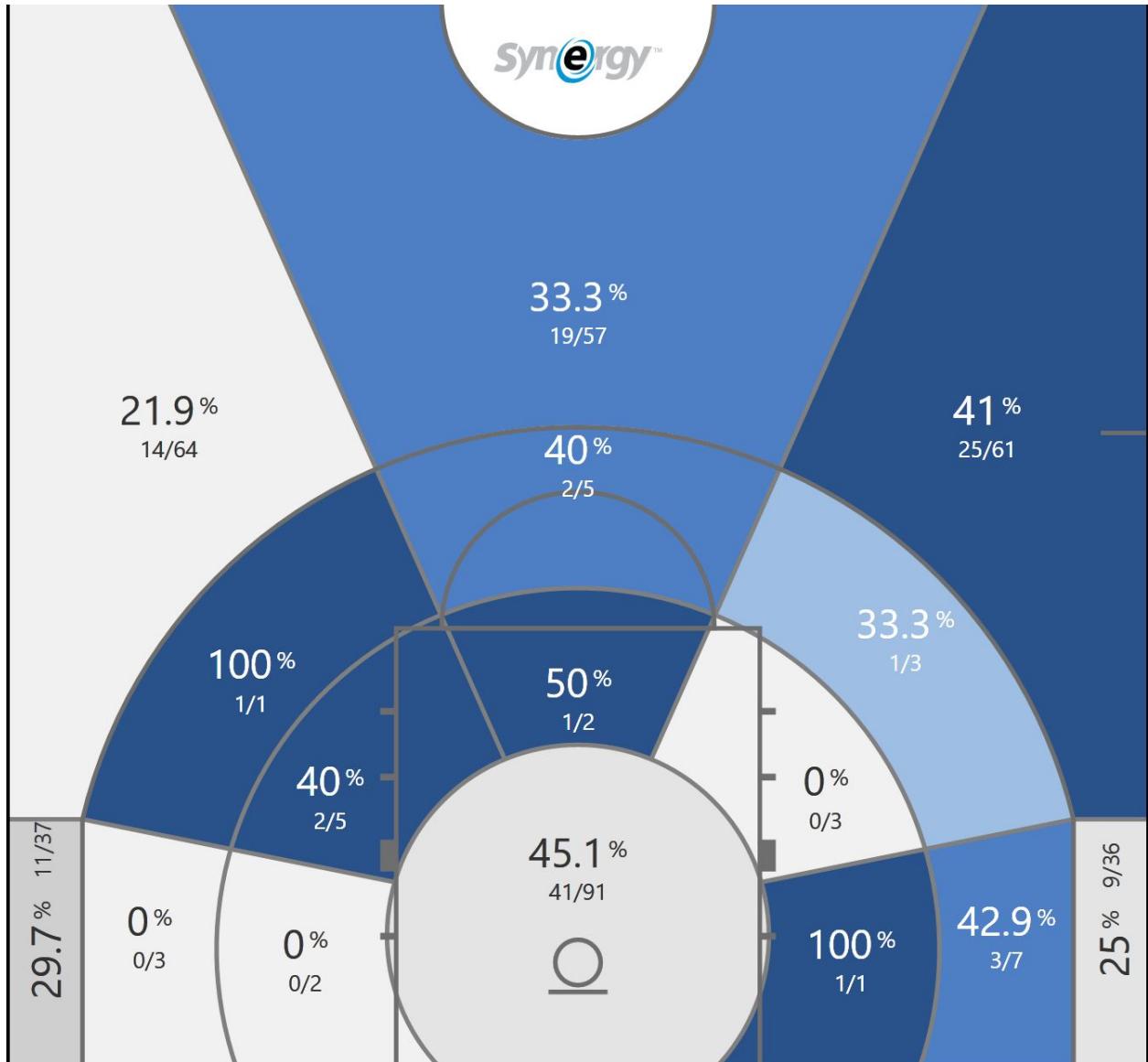
Here is an example using Carleton:



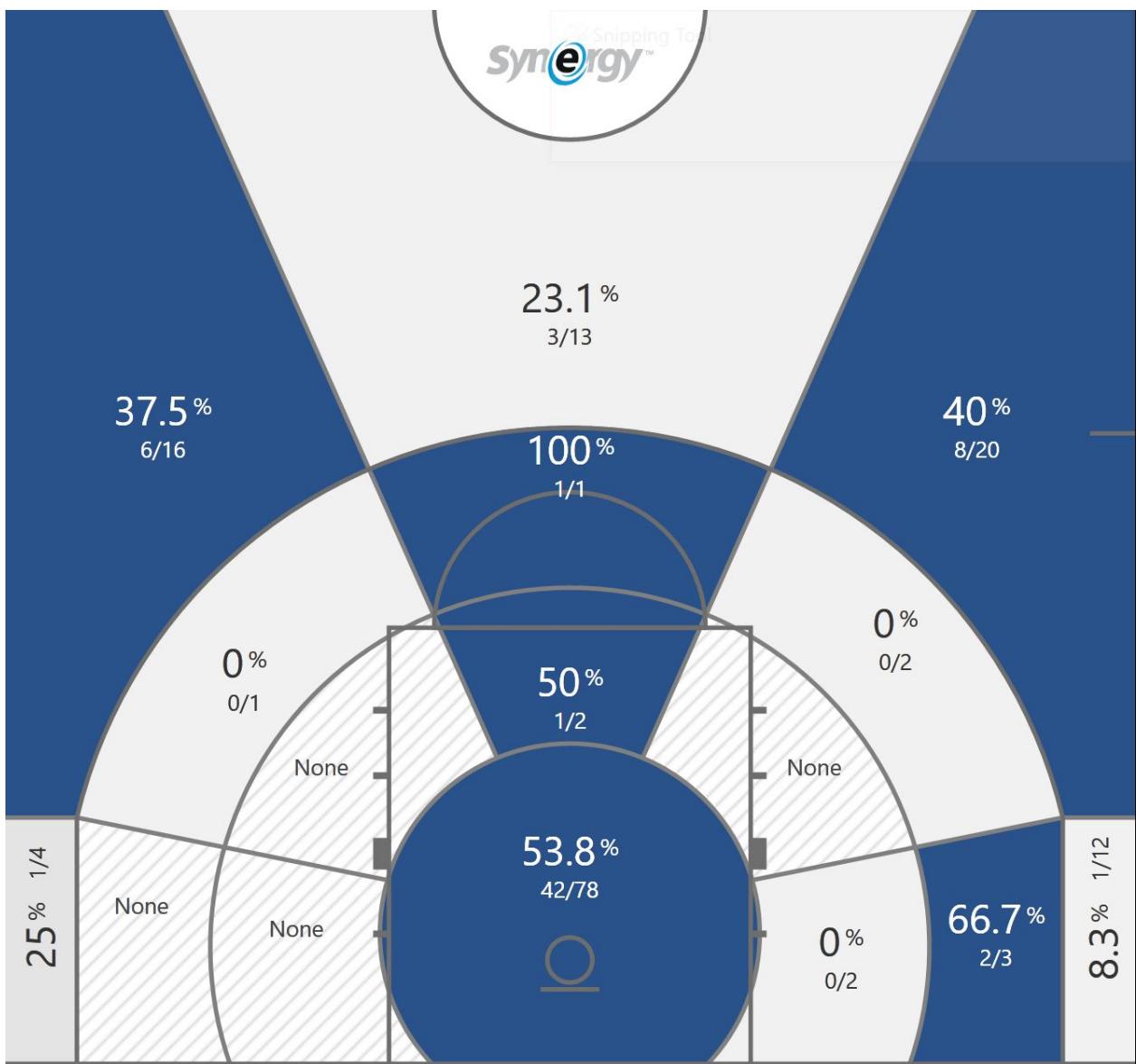
This is extremely helpful because it shows us where the teams are most effective and where they shoot from the most. Also using this tool, we can filter out by player, against which team, the play type, the shot type, the game situation, assisted from and shot distance. On top of that, it allows us to select clips that we can watch to see where something went wrong (or right).

Using this we will show our most used play types that we previously mentioned.

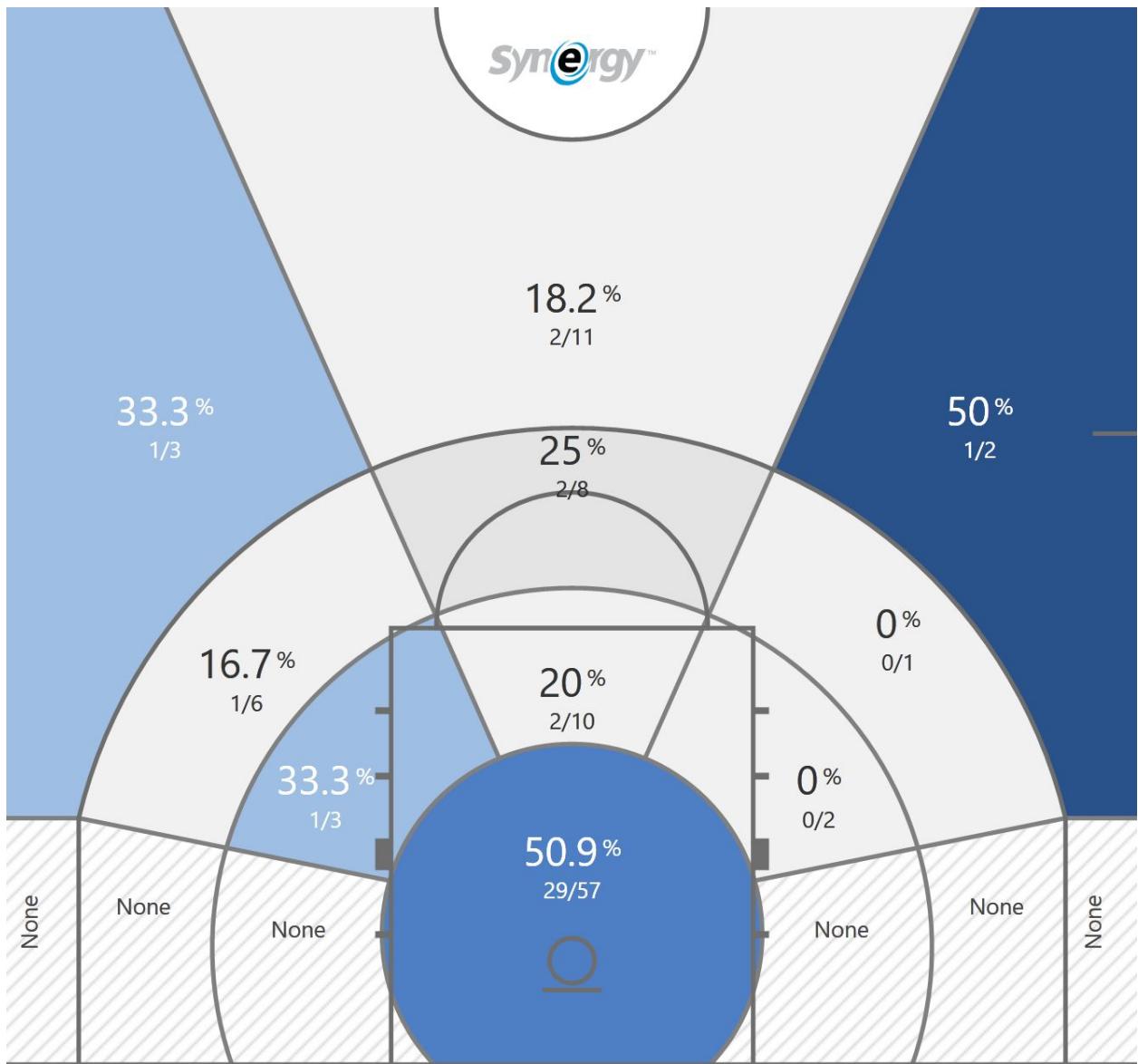
Spot-Ups:



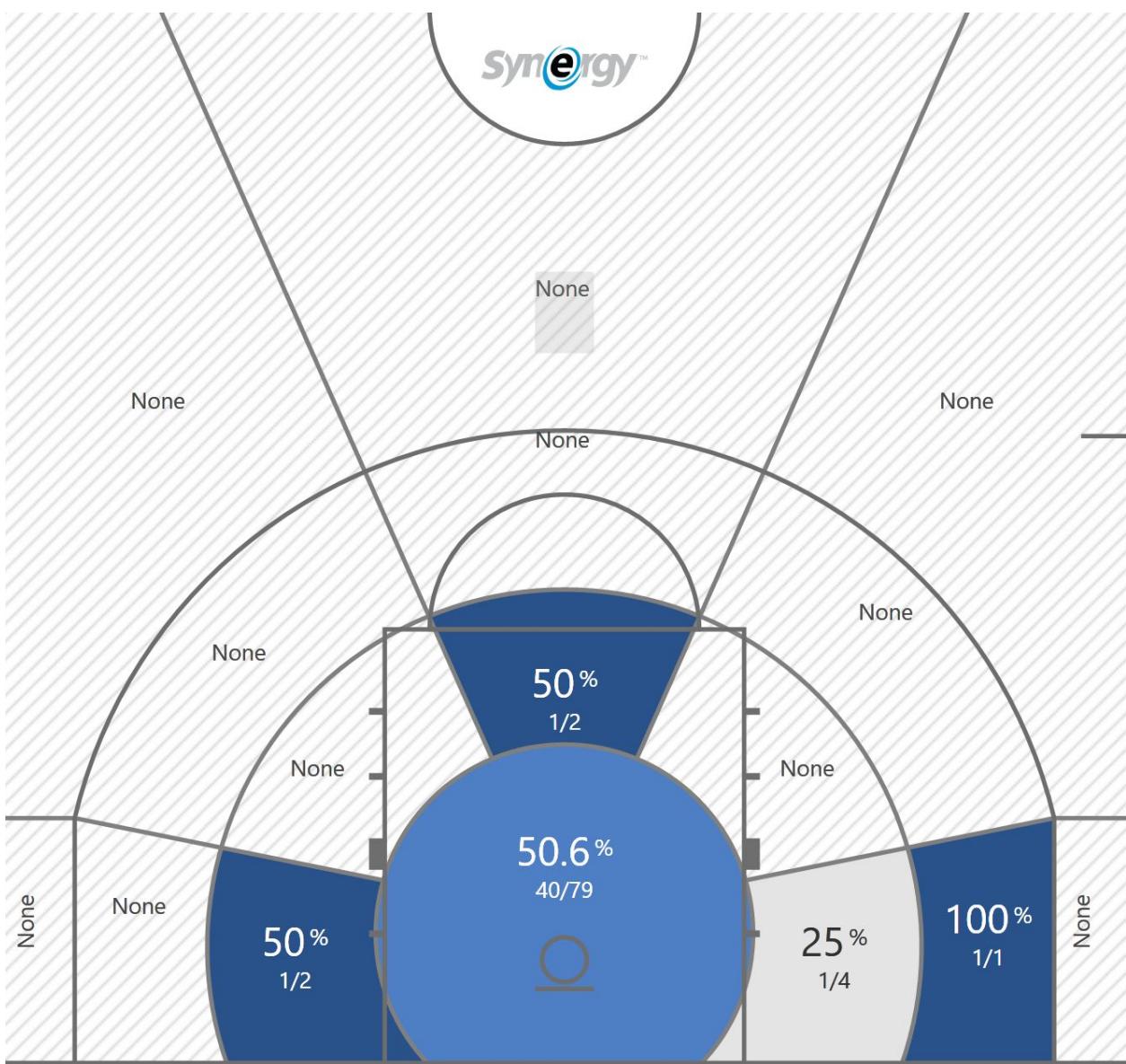
Transition:



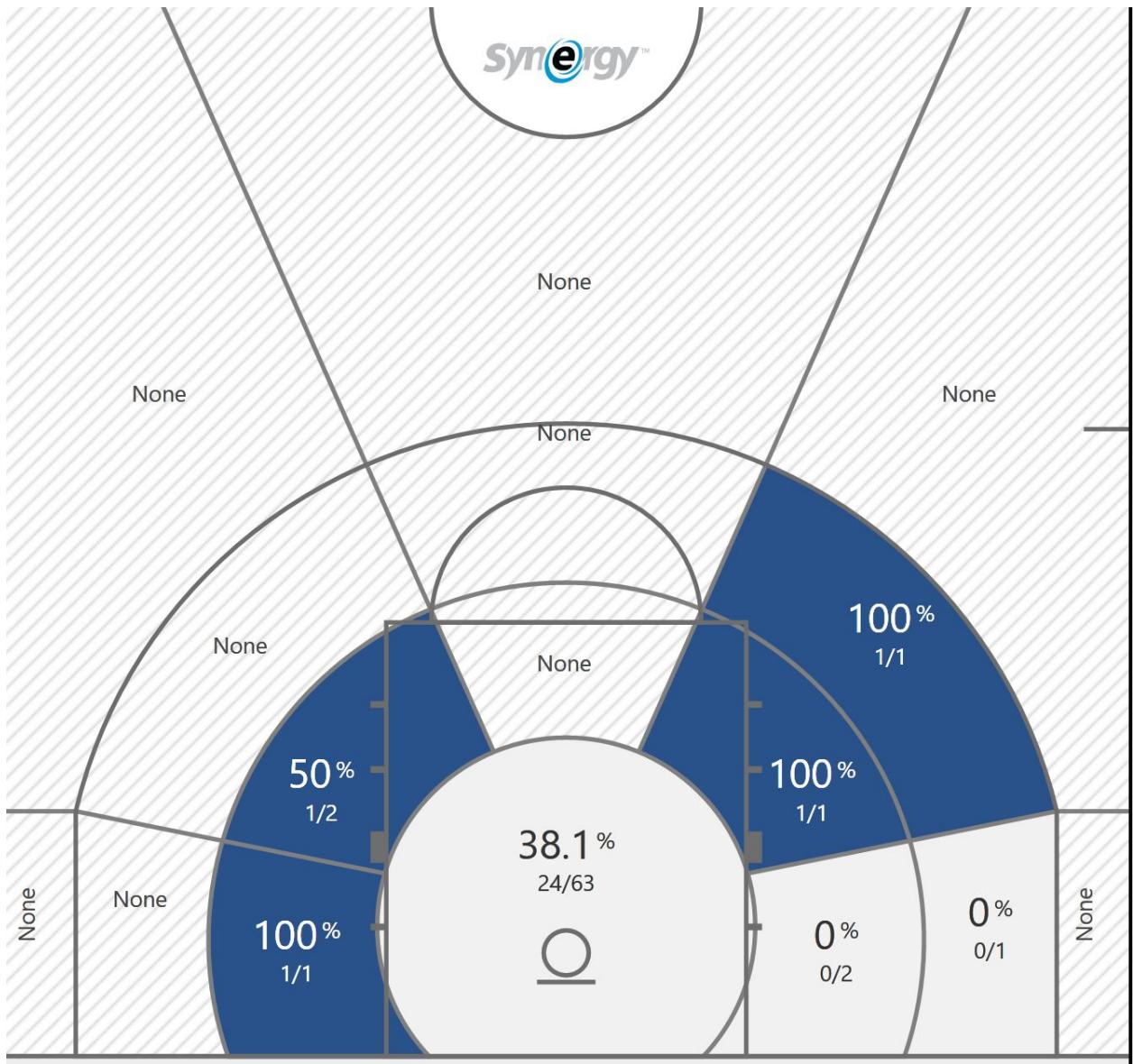
## Pick &amp; Roll Ball Handler:



Cut:



Post-Up:



We can also filter by player and see which players are shooting best and where they are most efficient.

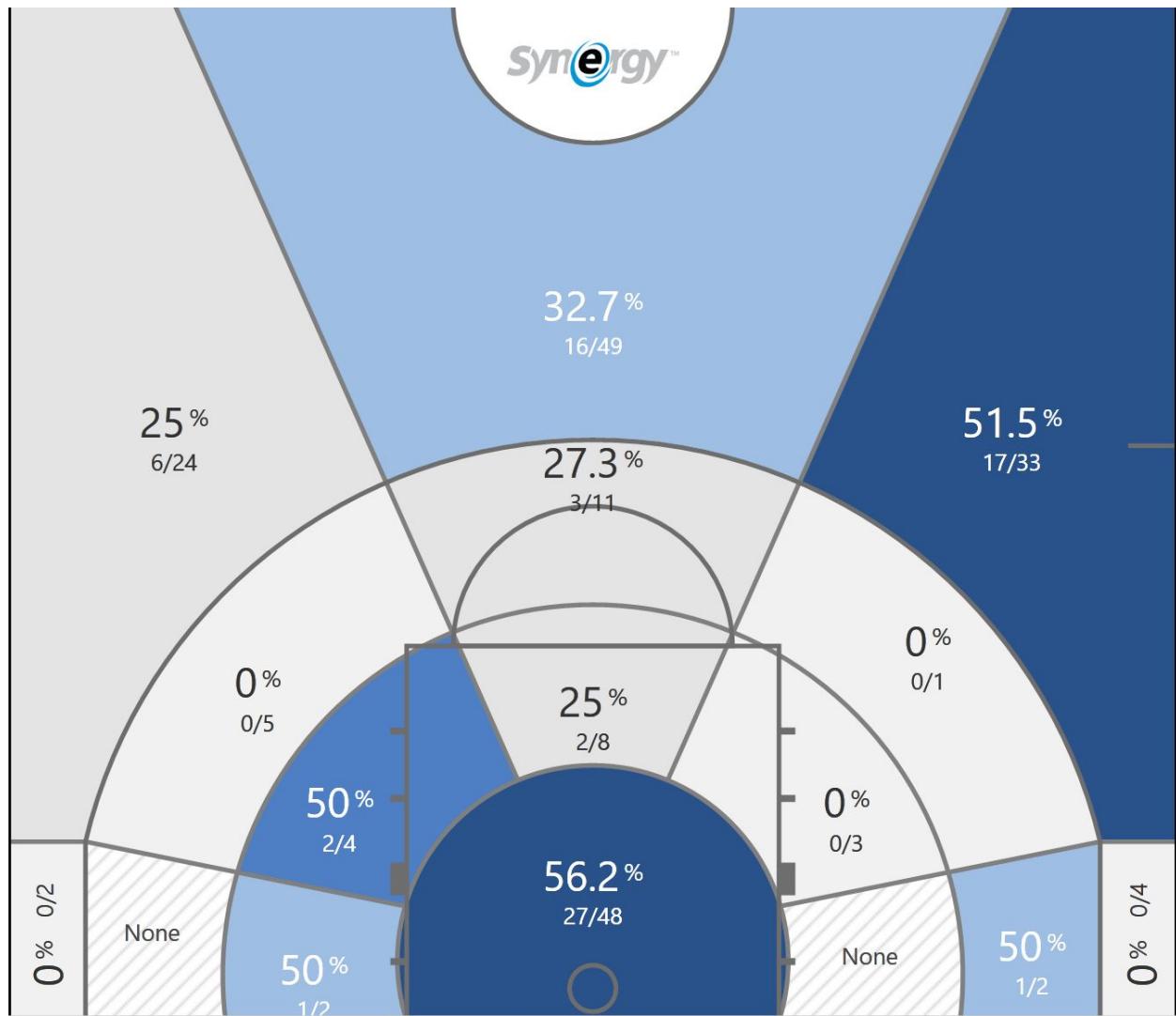
The players that shoot the most are:

### #9 Madison Reid

#	Name	Points	FGm	FGM	FGA	FG%	aFG%	2FGm	2FGM	2FGA	2FG%	3FGm	3FGA	3FG%
1	Carleton University Ravens Total	202	121	75	196	38.3	49.2	48	36	84	42.9	73	39	34.8
2	#9 M. Reid	202	121	75	196	38.3	49.2	48	36	84	42.9	73	39	34.8

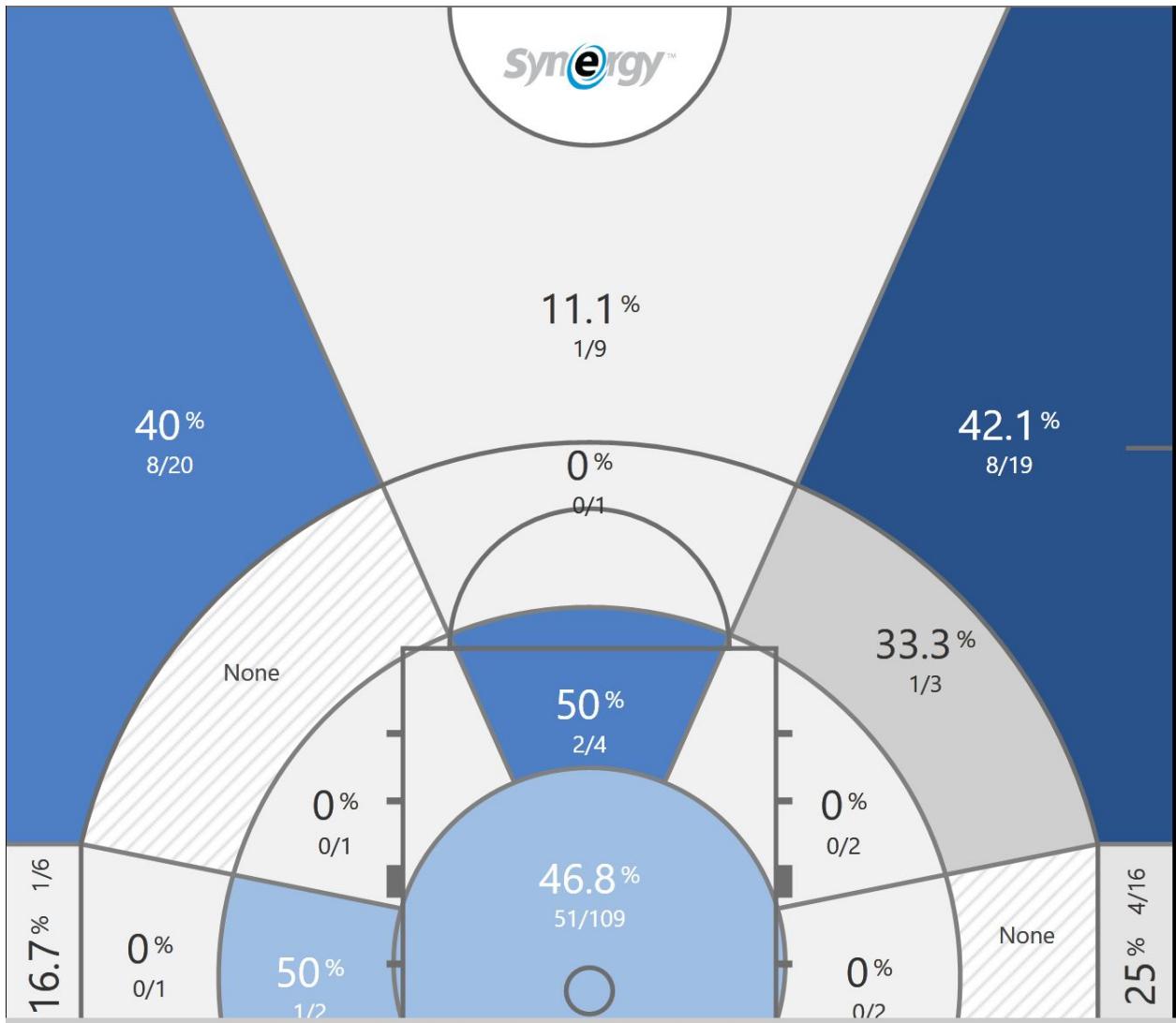
Note: aFG% is known as adjusted Field Goal percentage. A formula designed to determine the impact of the 3 point shooting of the player's overall shooting percentage.

$$aFG\% = [(Total\ Points - Free\ Throw\ Made) / FGA] / 2$$



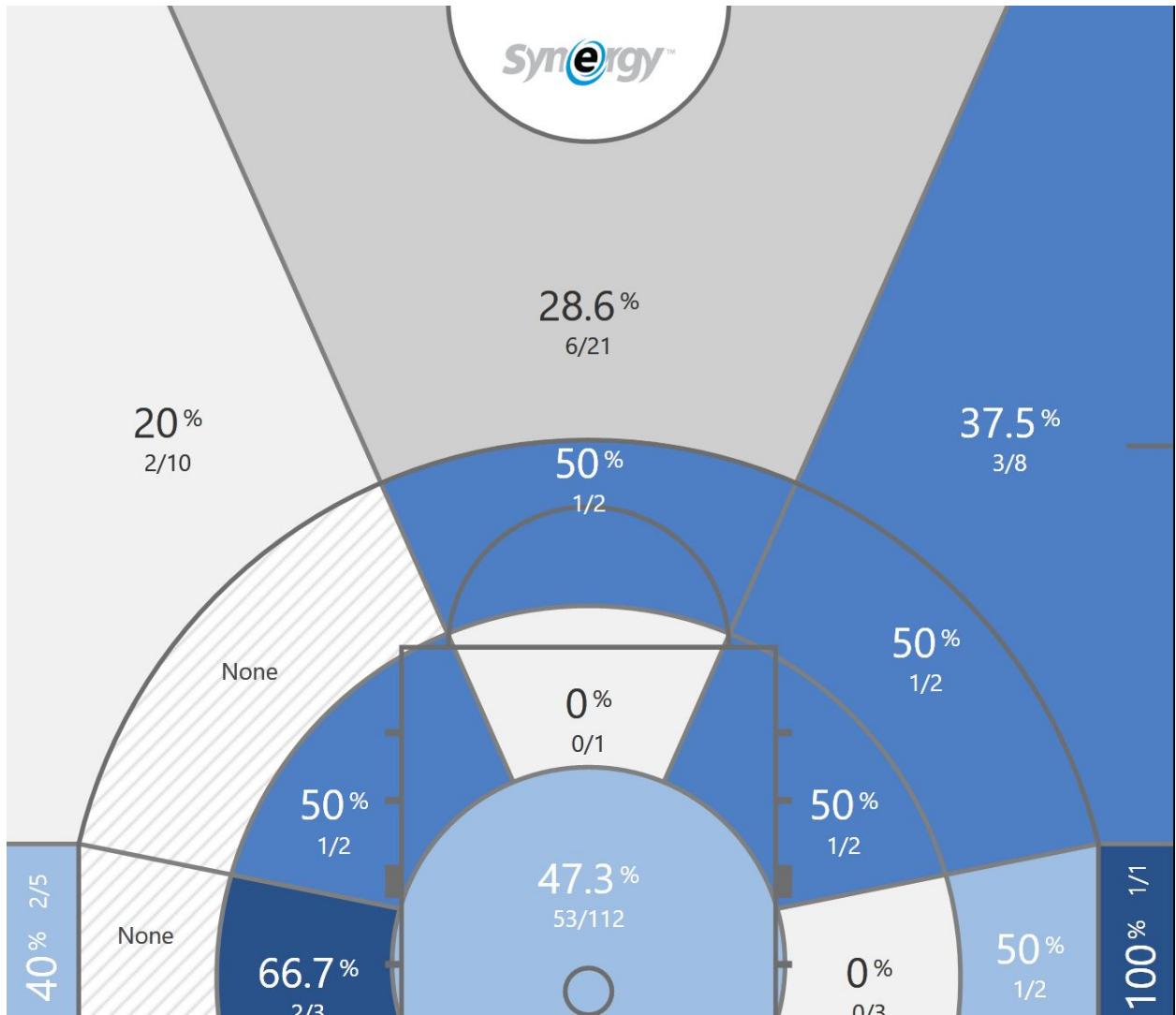
## #13 Nicole Gilmore

#	Name	Points	FGm	FGM	FGA	FG%	aFG%	2FGm	2FGM	2FGA	2FG%	3FGm	3FGA	3FG%	
1	Carleton University Ravens Total	210	118	77	195	39.5	47.4	70	55	125	44	48	22	70	31.4
2	#13 N. Gilmore	210	118	77	195	39.5	47.4	70	55	125	44	48	22	70	31.4



## #8 Alyssa Cerino

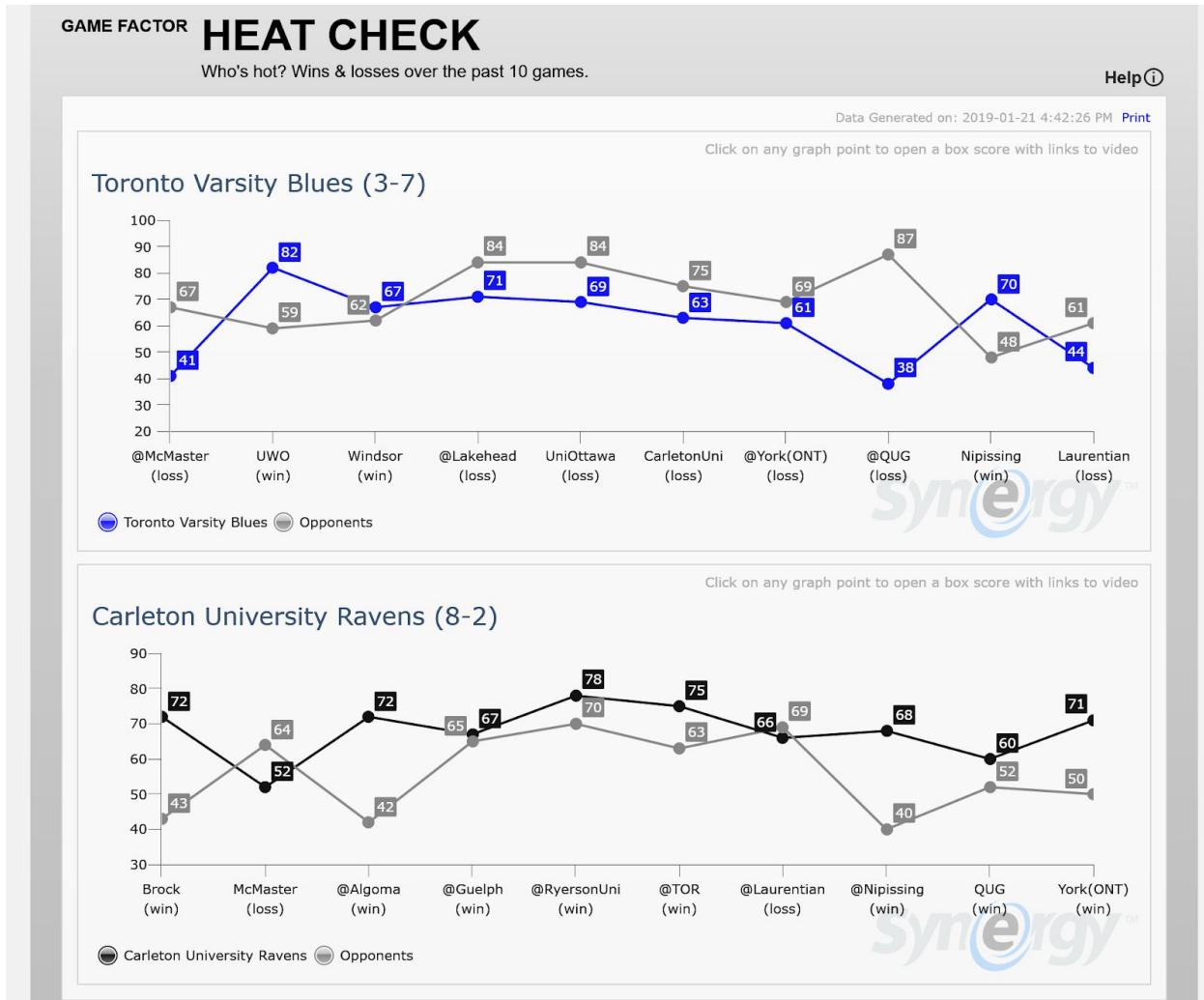
#	Name	Points	FGm	FGM	FGA	FG%	aFG%	2FGm	2FGM	2FGA	2FG%	3FGm	3FGM	3FGA	3FG%
1	Carleton University Ravens Total	213	100	74	174	42.5	51.4	69	60	129	46.5	31	14	45	31.1
2	#8 A. Cerino	213	100	74	174	42.5	51.4	69	60	129	46.5	31	14	45	31.1



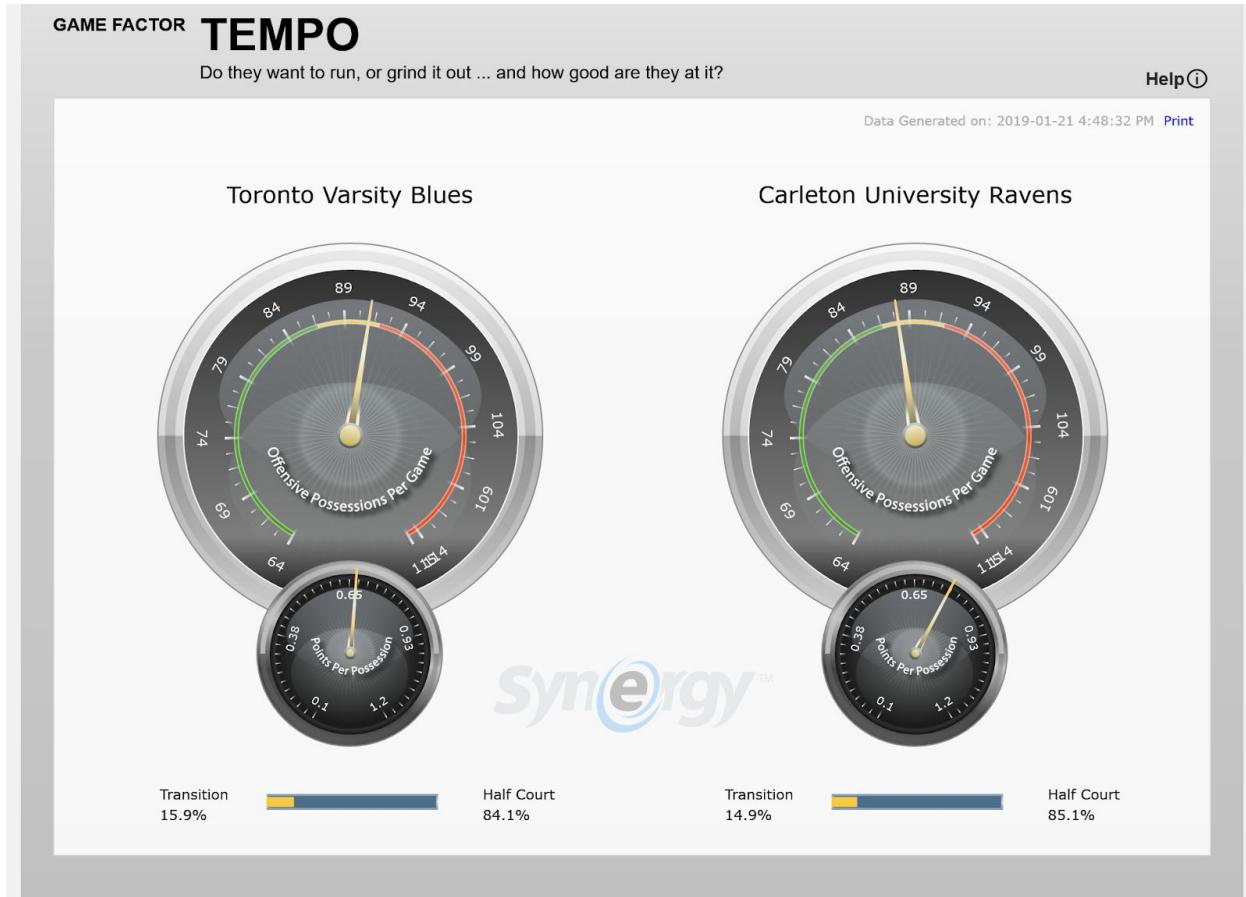
## Scouting Report

Another Synergy feature that is very useful is the Scouting Report that it provides. It gives us a very detailed analysis of the opponent's playing style, top players, tempo, and defensive impact. The Carleton Ravens play the University of Toronto on January 25th at home.

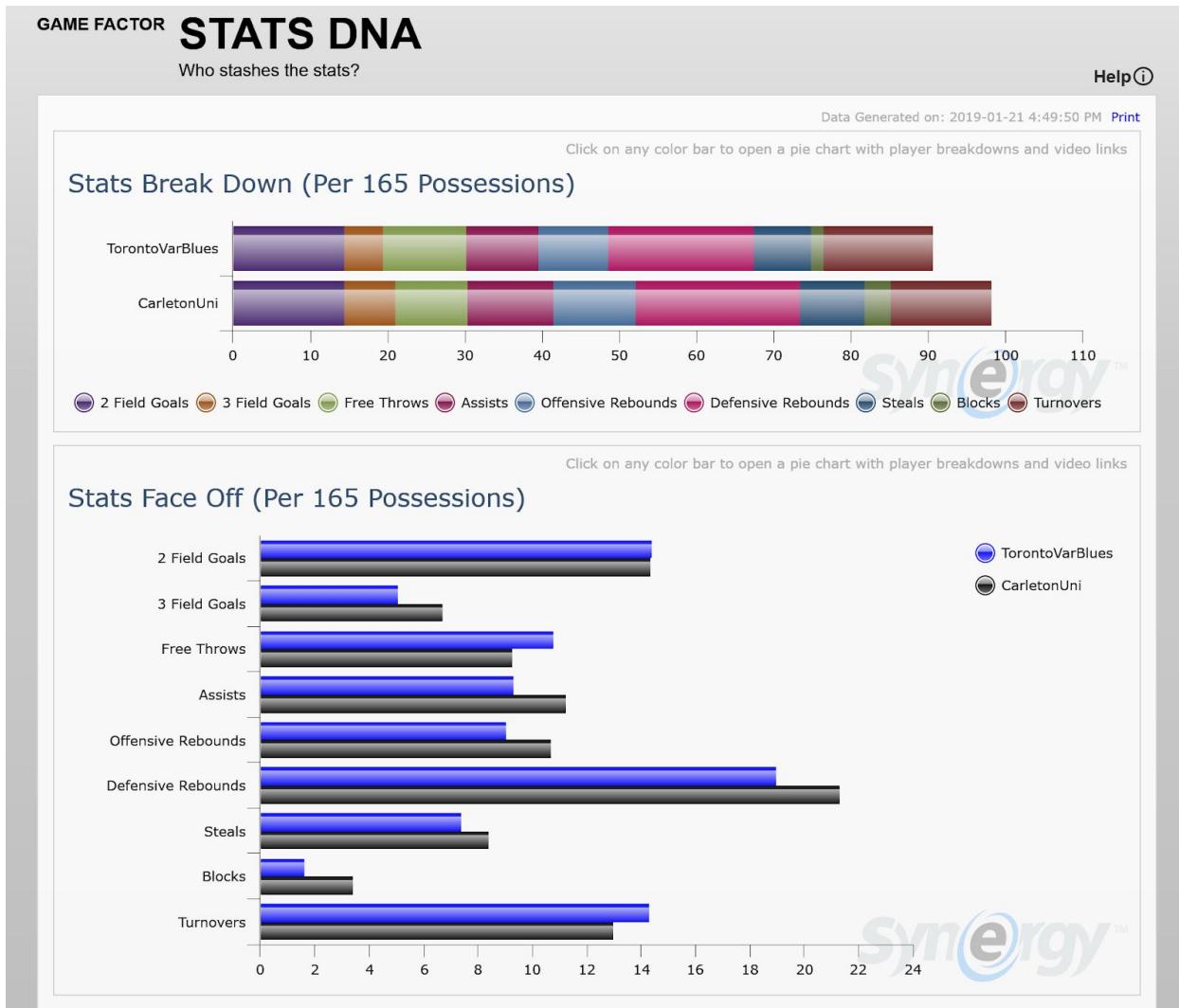
This is the scouting report:



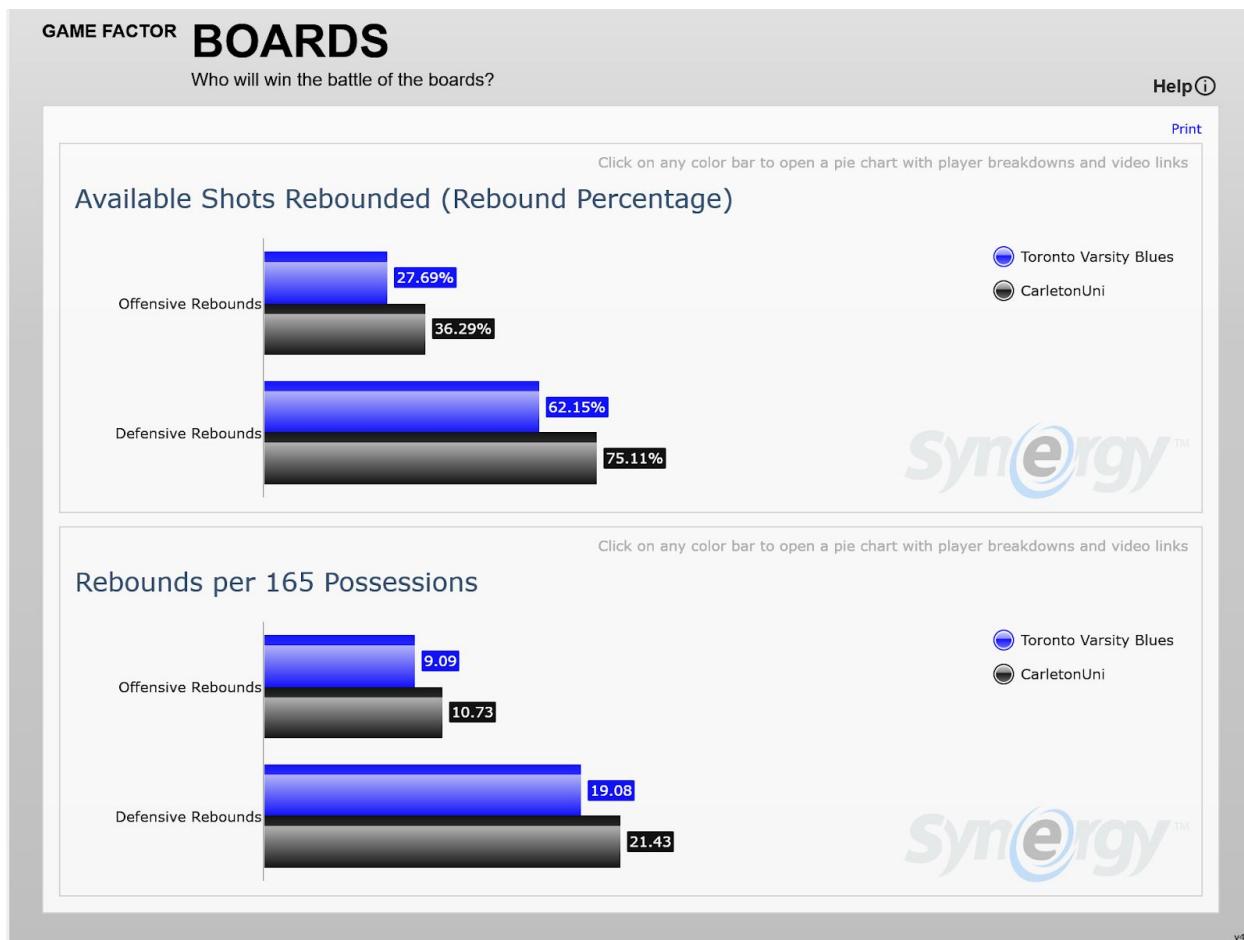
[description]



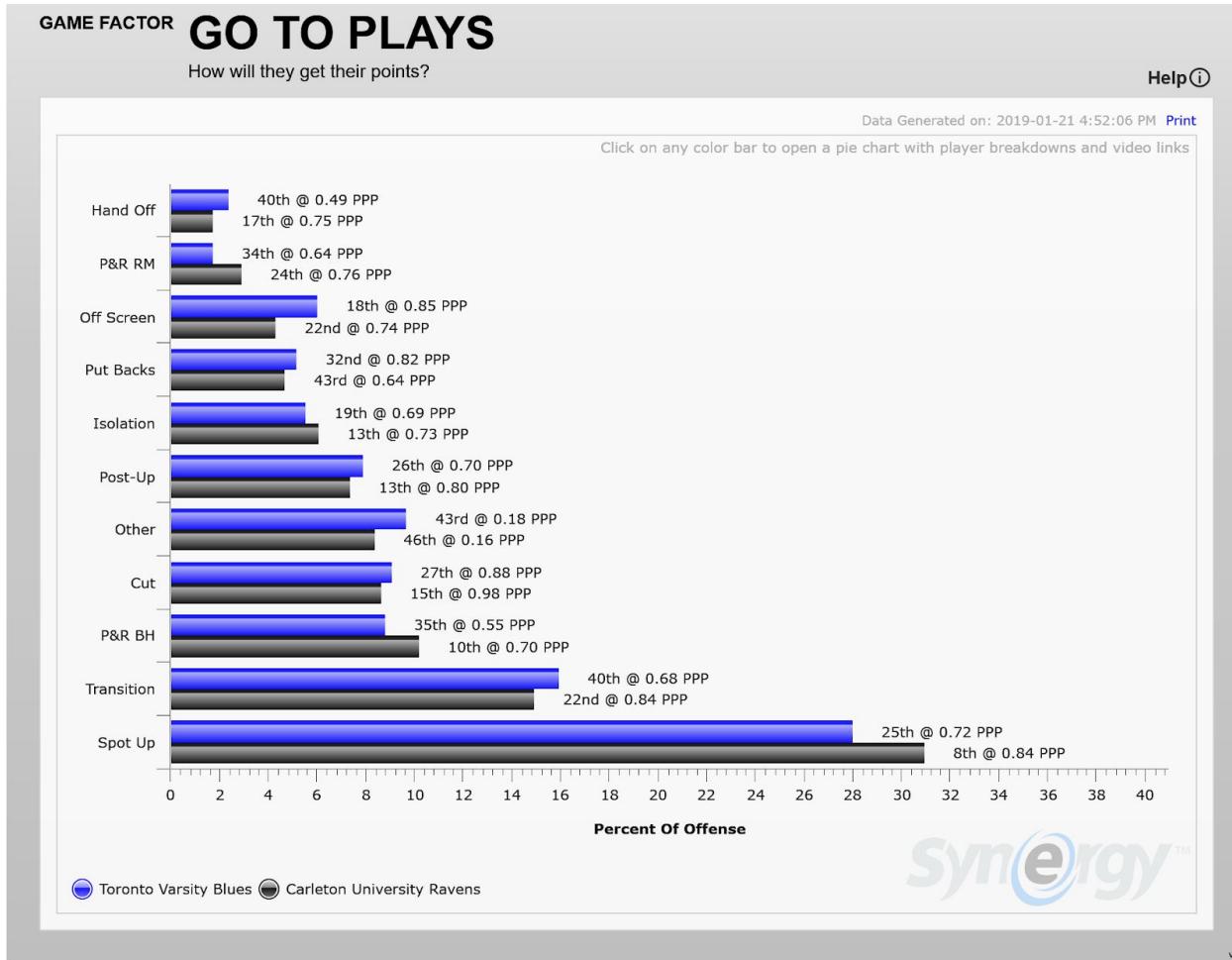
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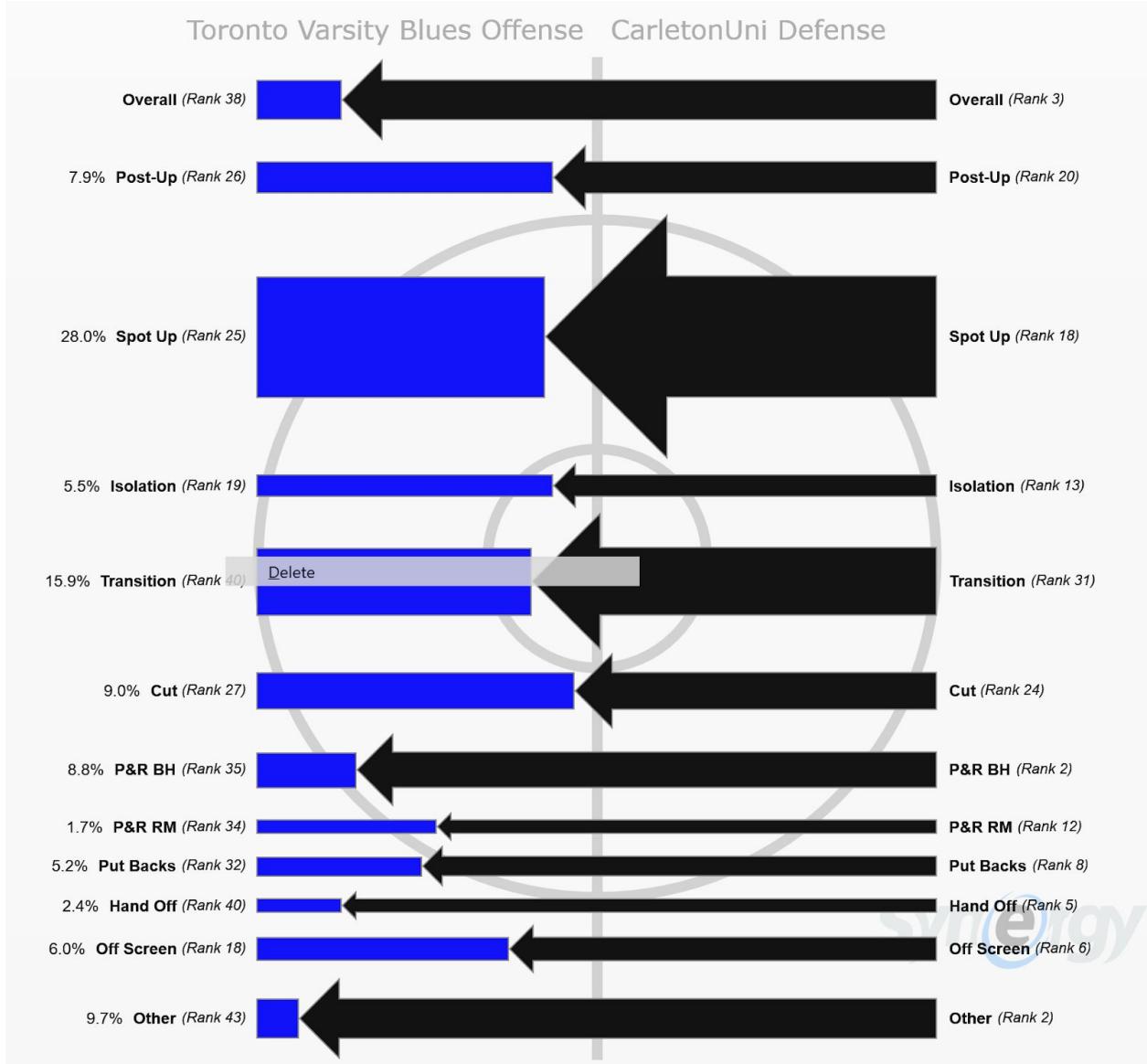
[description]



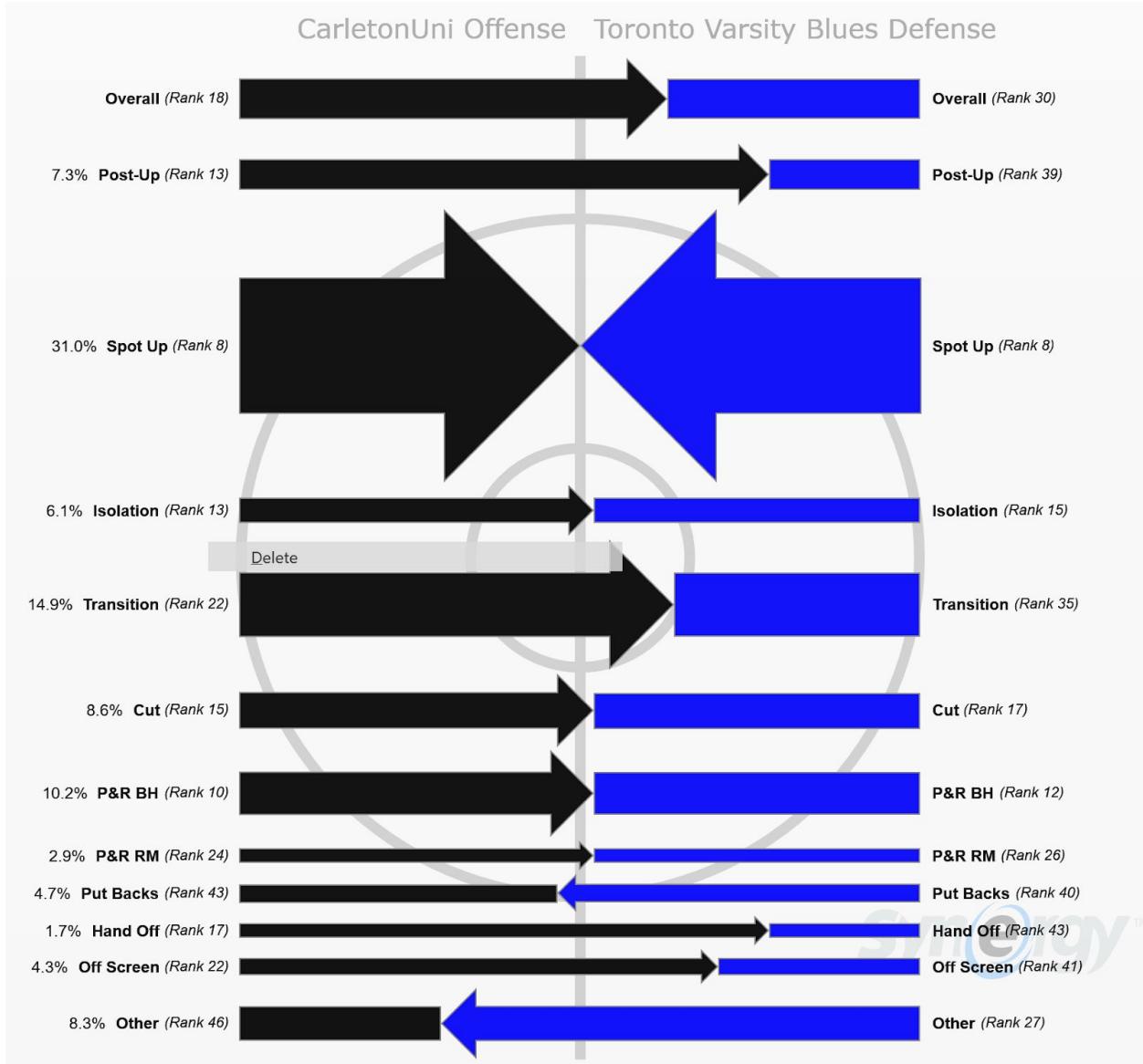
[description]



[description]

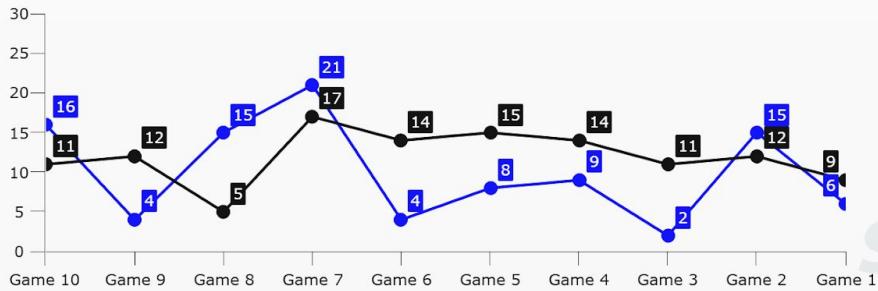


[description]



[description]

### Points Per Game



### Jessica Muha

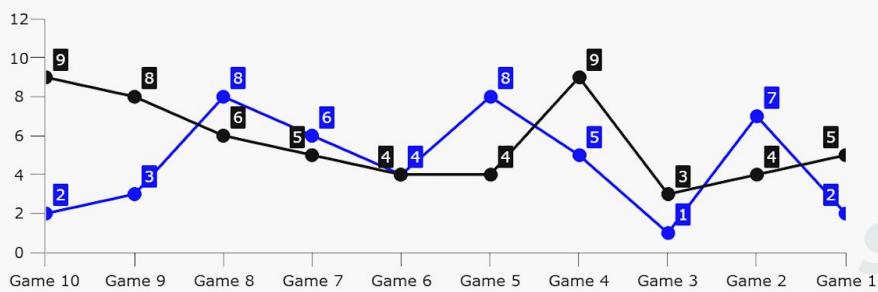
Average  
9.7  
Average / Last 10  
10

### Alyssa Cerino

Average  
12.8  
Average / Last 10  
12

Click on any graph point to open a box score with links to video

### Rebounds Per Game



### Jessica Muha

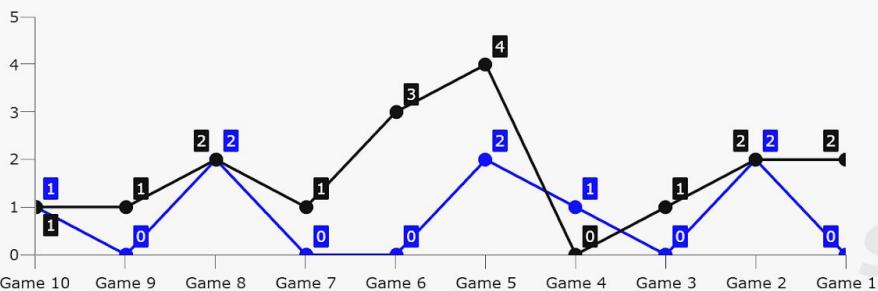
Average  
4.7  
Average / Last 10  
4.6

### Alyssa Cerino

Average  
5.6  
Average / Last 10  
5.7

Click on any graph point to open a box score with links to video

### Assists Per Game



### Jessica Muha

Average  
0.9  
Average / Last 10  
0.8

### Alyssa Cerino

Average  
1.7  
Average / Last 10  
1.7

[description]

## Association Rule Learning

Association rule learning is a rule-based machine learning method for discovering interesting relations between variables in large databases. It is intended to identify strong rules discovered in databases using some measures of interestingness. The ultimate goal is to extract and abstract association capabilities from new uncategorized data.

I will be implementing this method on the team's game-by-game play type statistics.

The team play type statistics look like this for each game:

Element Title	Entire Game			First Quarter			Second Quarter			Third Quarter			Fourth Quarter		
	OTT	CAR	Both	OTT	CAR	Both	OTT	CAR	Both	OTT	CAR	Both	OTT	CAR	Both
	90	92	182	24	23	47	22	21	43	21	22	43	23	26	49
All Possession Clips	17	11	28	3	4	7	5	1	6	3	1	4	6	5	11
Transitions	14	2	16	5	1	6	2	1	3	3	0	3	4	0	4
All Post-Up	12	1	13	4	1	5	1	0	1	3	0	3	4	0	4
Post-Up - Single Covered	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Post-Up - Hard Double Team	2	1	3	1	0	1	1	1	2	0	0	0	0	0	0
Post-Up - Defense Commits	17	18	35	4	4	8	7	5	12	4	5	9	2	4	6
All P&R Ball Handler	11	7	18	2	2	4	6	2	8	2	3	5	1	0	1
P&R Ball Handler - Single Covered	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P&R Ball Handler - Traps	6	11	17	2	2	4	1	3	4	2	2	4	1	4	5
P&R Ball Handler - Defense Commits	1	5	6	1	1	2	0	2	2	0	0	0	0	2	2
P&R Roll Man	2	8	10	0	1	1	0	2	2	2	2	4	0	3	3
All Isolation	1	4	5	0	1	1	0	1	1	1	1	2	0	1	1
Isolation - Single Covered	1	4	5	0	0	0	0	1	1	1	1	2	0	2	2
Isolation - Defense Commits	6	7	13	0	3	3	2	0	2	1	3	4	3	1	4
Handoffs	11	1	12	4	0	0	0	0	0	1	0	1	2	1	3
Spot Ups	5	11	16	2	1	3	1	2	3	0	2	2	2	6	8
Cuts	2	5	7	1	0	1	1	1	2	0	1	1	0	3	3
All Offensive Rebounds	3	6	9	1	1	2	0	1	1	0	1	1	2	3	5
Off. Reb. - Reset Offense	11	12	23	5	3	8	2	2	4	2	3	5	2	4	6
Miscellaneous Possessions	1	5	7	1	0	1	1	1	2	0	1	1	0	3	3

I will be trying to create rules based on the Carleton Ravens Play types that contribute to wins or losses.